

c.) Amendments to the claims.

Please amend claims 1-21 as follows:

Claim 1. (currently amended) An isolated nucleic acid encoding a polypeptide ~~which that~~ elongates C₁₆- or C₁₈-fatty acids with at least two double bonds in the fatty acid by at least two carbon atoms, wherein one or more of C_{18:3}^{Δ5,9,12}, C_{20:3}^{Δ8,11,14}, C_{20:4}^{Δ5,8,11,14} and C_{20:50}^{Δ5,8,11,14,17} are not being elongated.

Claim 2. (currently amended) An isolated nucleic acid comprising a nucleotide sequence encoding a polypeptide ~~which that~~ elongates C₁₆- or C₁₈-fatty acids with at least two double bonds in the fatty acid molecule, wherein said nucleotide sequence is selected from the group consisting of:

- a) ~~a nucleic acid~~ the sequence shown in of SEQ ID NO:1;
- b) a nucleic acid sequence which, in accordance with the degeneracy of the genetic code, is derived from the amino acid sequence ~~shown in of~~ SEQ ID NO:2; and
- c) derivatives of the sequence ~~shown in of~~ SEQ ID NO:1 which encode polypeptides with at least 50% homology with ~~the sequence encoding~~ the amino acid sequences in of SEQ ID NO:2, wherein the sequence ~~acting~~ acts as a C₁₆- or C₁₈-elongase.

Claim 3. (currently amended) ~~An isolated~~ The nucleic acid sequence ~~according to~~ of claim 2, wherein the sequence is derived from an Oomycete.

Claim 4. (currently amended) ~~An isolated~~ The nucleic acid sequence ~~according to~~ of claim 2 ~~or 3~~, wherein the sequence is derived from Phytophthora.

Claim 5. (currently amended) An amino acid sequence ~~which is derived from an isolated~~ encoded within the nucleic acid sequence ~~according to any of claims 2 to 4 of~~

claim 1.

Claim 6. (currently amended) A gene construct comprising ~~an isolated~~ the nucleic acid ~~according to any of claims 1 to 4~~ of claim 1, wherein the nucleic acid is functionally linked to one or more regulatory signals.

Claim 7. (currently amended) A ~~The~~ gene construct ~~according to~~ of claim 6, ~~whose wherein the one or more regulatory signals enhance gene expression is enhanced by the regulatory signals.~~

Claim 8. (currently amended) A vector comprising a the nucleic acid ~~according to claim 2~~ or a gene construct ~~according to~~ of claim 6.

Claim 9. (currently amended) An organism comprising ~~at least one~~ a recombinant nucleic acid ~~according to claim 2, a gene construct according to claim 6 or a vector according to claim 8~~ that encodes a polypeptide, which elongates C₁₆- or C₁₈-fatty acids with at least two double bonds in the fatty acid by at least two carbon atoms, wherein one or more of C_{18:3}^{Δ5,9,12}, C_{20:3}^{Δ8,11,14}, C_{20:4}^{Δ5,8,11,14} and C_{20:50}^{Δ5,8,11,14,17} are not elongated.

Claim 10. (currently amended) ~~An~~ The organism ~~according to~~ of claim 9, wherein the organism is a microorganism, a nonhuman animal or a plant.

Claim 11. (currently amended) ~~An~~ The organism ~~according to~~ of claim 9 ~~or 10~~, wherein the organism is a transgenic plant.

Claim 12. (currently amended) A process for the production of PUFAs, which comprises culturing ~~an~~ the organism ~~which comprises a nucleic acid according to~~ of claim ~~2~~ 2, ~~a gene construct according to claim 6 or a vector according to claim 8, encoding a~~

~~polypeptide which elongates C₁₆- or C₁₈-fatty acids with at least two double bonds in the fatty acid molecule by at least two carbon atoms~~ under conditions ~~under~~ in which said PUFAs are formed in the organism.

Claim 13. (currently amended) A ~~The process according to~~ of claim 12, wherein the PUFAs prepared by the process are C₂₀- or C₂₂-fatty acid molecules with at least two double bonds in the fatty acid molecule.

Claim 14. (currently amended) A ~~The process according to~~ of claim 13, wherein the C₂₀- or C₂₂-fatty acid molecules are isolated from the organism in the form of an oil, a lipid or a free fatty acid.

Claim 15. (currently amended) A ~~The process according to any of claims 12 to 14 of~~ claim 12, wherein the organism is a microorganism, a nonhuman animal or a plant.

Claim 16. (currently amended) A ~~The process according to any of claims 12 to 15 of~~ claim 12, wherein the organism is a transgenic plant.

Claim 17. (currently amended) A ~~The process according to any of claims 12 to 16 of~~ claim 12, wherein the C₁₆- or C₁₈-fatty acid is a fatty acid with three double bonds in the molecule.

Claim 18. (currently amended) An oil, lipid or fatty acid or a fraction thereof, prepared by the process ~~according to any of claims 12 to 17 of~~ claim 12.

Claim 19. (currently amended) An oil, lipid or fatty acid composition which comprises PUFAs and ~~which~~ is derived from a transgenic plant.

Claim 20. (currently amended) ~~An~~ The oil, lipid or fatty acid composition according to of claim 19, wherein the PUFAs are derived from transgenic plants which comprise plant contains a nucleotide sequence according to claim 2 encoding a polypeptide that elongates C₁₆- or C₁₈-fatty acids with at least two double bonds in the fatty acid molecule, wherein said nucleotide sequence is selected from the group consisting of:

the sequence of SEQ ID NO:1;
a nucleic acid sequence which, in accordance with degeneracy of the genetic code, is derived from the amino acid sequence of SEQ ID NO:2; and
derivatives of the sequence of SEQ ID NO:1 which encode polypeptides with at least 50% homology with the sequence encoding the amino acid sequences of SEQ ID NO:2, the sequence acting as C₁₆- or C₁₈-elongase.

Claim 21. (currently amended) ~~The use of the oil, lipid or fatty acid composition in feeding~~ Feeding stuffs, foodstuffs, cosmetics or pharmaceuticals comprising the oil, lipid or fatty acid composition of claim 19.

Please add the following as new claims 22-25:

Claim 22. (new) The nucleic acid of claim 1, which encodes a polypeptide that elongates C₁₆- or C₁₈-fatty acids with at least three double bonds in the fatty acid.

Claim 23. (new) The nucleic acid of claim 1, which encodes a polypeptide that elongates C₁₆- or C₁₈-fatty acids with at least four double bonds in the fatty acid.

Claim 24. (new) The nucleic acid of claim 1, wherein the polypeptide shows a preference for elongating C_{18:3}^{Δ6,9,12}, C_{18:4}^{Δ6,9,12,15}, or C_{16:3}^{Δ7,10,13} -fatty acids as compared to one or more of C_{18:2}^{Δ9,12}, C_{18:3}^{Δ4,7,10}, C_{18:3}^{Δ5,8,11}, C_{18:3}^{Δ7,10,13}, C_{18:3}^{Δ8,11,14}, C_{18:3}^{Δ9,12,15} or C_{18:3}^{Δ5,c9,12} -fatty acids.

Claim 25. (new) The nucleic acid of claim 24, wherein the preference is at least a factor of 1.5.